46. (New) A method for preventing and/or treating an amyloid-related disease in a subject, comprising: administering to the subject an antigenic amount of an all-D peptide, wherein said all-D peptide elicits the production of antibodies against said all-D peptide and induces an immune response by said subject, thereby preventing and/or reducing amyloid-induced amyloid fibril formation or neurodegeneration.

47. (New) The method of claim 46, wherein said all-D peptide interacts with at least one region of an amyloid protein, said region being selected from the group consisting of: C-terminal region, β sheet region, GAG-binding site region, cellular adherence region, immunogenic fragments thereof, protein conjugates thereof, immunogenic derivative peptides thereof, immunogenic peptides thereof, and immunogenic peptidomimetics thereof.

48. (New) The method of claim 46, wherein said all-D peptide further comprises:

(a) an N-terminal substituent selected from the group consisting of:

- hydrogen;
- lower alkyl group consisting of acyclic or cyclic having 1 to 8 carbon atoms;
- aromatic group;
- heterocyclic group; and
- acyl group; and

(b) a C-terminal substituent selected from the group consisting of hydroxy, alkoxy, aryloxy, unsubstituted and substituted amino groups.

49. (New) The method of claim 48, wherein said alkyl or aromatic group is further substituted with a group selected from the group consisting of halide, hydroxyl, alkoxyl, aryloxyl, hydroxycarbonyl, alkoxylcarbonyl, aryloxycarbonyl, carbamyl, unsubstituted amino, substituted amino, sulfo, alkyloxysulfonyl, phosphono and alkoxyphosphonyl groups.

50. (New) The method of claim 48, wherein said all-D peptide further comprises an acid functional group, or a pharmaceutically acceptable salt or ester form thereof.

51. (New) The method of claim 48, wherein said all-D peptide is selected from the group consisting

of SEQ ID NOS: 1-48.

52. (New) The method of claim 51, wherein said all-D peptide is modified by substituting at least one amino acid residue with another amino acid or non-amino acid fragment.

53. (New) The method of claim 52, wherein said modified peptide is selected from the group consisting of SEQ ID NOS: 49-63.

54. (New) The method of claim 51, wherein said all-D peptide is modified by removing or inserting at least one amino acid residue.

55. (New) The method of claim 46, wherein said amyloid protein is selected from the group consisting of: Aβ(1-42, all-D), beta sheet region of IAPP (24-29, all-D), β2-microglobulin, amyloid A protein, prion-related proteins, GAG-binding site region, and macrophage adherence region (10-16, all-D).

56. (New) A method for preventing and/or treating an amyloid-related disease in a subject, comprising administering to the subject an antigenic amount of a peptide having Formula I:

R'—(P)—R" (I)

wherein

P is an all-D peptide of a fibril or amyloid protein selected from the group consisting of: Aβ(1-42, all-D), C-terminal region, β sheet region, GAG-binding site region, cellular adherence region, immunogenic fragments thereof, protein conjugates thereof, immunogenic derivative peptides thereof, immunogenic peptides thereof, and immunogenic peptidomimetics thereof;

R' is an N-terminal substituent selected from the group consisting of:

- hydrogen;
- lower alkyl group consisting of acyclic or cyclic having 1 to 8 carbon atoms;
- aromatic group;
- heterocyclic group; and
- acyl group; and

R" is a C-terminal substituent selected from the group consisting of hydroxy group, alkoxy group, aryloxy group, unsubstituted group, and substituted amino group.

57. (New) The method of claim 56, wherein said all-D peptide elicits the production of antibodies against said all-D peptide, and induces an immune response by said subject, thereby preventing and/or reducing amyloid-induced amyloid fibril formation or neurodegeneration.

58. (New) The method of claim 56, wherein said alkyl or aromatic group is further substituted with a group selected from the group consisting of halide, hydroxyl, alkoxyl, aryloxyl, hydroxycarbonyl, alkoxylcarbonyl, aryloxycarbonyl, carbamyl, unsubstituted amino, substituted amino, sulfo, alkyloxysulfonyl, phosphono and alkoxyphosphonyl groups.

59. (New) The method of claim 56, wherein said all-D peptide further comprises an acid functional group, or a pharmaceutically acceptable salt or ester form thereof.

60. (New) The method of claim 56, wherein said all-D peptide further comprises a base functional group, or pharmaceutically acceptable salt form thereof.

61. (New) The method of claim 56, wherein said all-D peptide is selected from the group consisting of SEQ ID NOS: 1-48.

62. (New) The method of claim 61, wherein said all-D peptide is modified by substituting one or more amino acid residues with other amino acid or non-amino acid fragment.

63. (New) The method of claim 62, wherein said modified peptide is selected from the group consisting of SEQ ID NOS: 49-63.

64. (New) The method of claim 61, wherein said all-D peptide is modified by removing or inserting one or more amino acid residues.

65. (New) The method of claim 56, wherein said disease is selected from the group consisting of Creutzfeld-Jakob Disease; familial amyloid neuropathy; hereditary spongiform encephalopathy;

scrapie, bovine spongiform encephalopathy; light chain-related amyloidosis; secondary amyloidosis; Type I or Type II diabetes; primary amyloidosis; prion-mediated diseases; and dialysis-related amyloidosis.

66. (New) The method of claim 56, wherein said disease is Alzheimer's disease.

67. (New) The method of claim 56, wherein said disease is cerebral amyloid angiopathy (CAA).

68. (New) The method of claim 56, wherein said subject is a human.

69. (New) The method of claim 46, wherein said amyloid protein is selected from the group consisting of: Aβ(1-42, all-D), beta sheet region of IAPP (24-29, all-D), β2-microglobulin, amyloid A protein, prion-related proteins, GAG-binding site region, and macrophage adherence region (10-16, all-D).

70. (New) A composition for preventing and/or treating an amyloid-related disease in a subject, comprising an antigenic amount of an all-D peptide, wherein said all-D peptide elicits the production of antibodies against said all-D peptide, and induces an immune response by said subject, thereby preventing and/or reducing amyloid-induced amyloid fibril formation or neurodegeneration.

71. (New) The composition of claim 70, wherein said all-D peptide interacts with at least one region of an amyloid protein, said region being selected from the group consisting of: C-terminal region, β sheet region, GAG-binding site region, cellular adherence region, immunogenic fragments thereof, protein conjugates thereof, immunogenic derivative peptides thereof, immunogenic peptides thereof, and immunogenic peptidomimetics thereof.

72. (New) The composition of claim 70, wherein said all-D peptide further comprises:

(a) an N-terminal substituent selected from the group consisting of:

- hydrogen;
- lower alkyl group consisting of acyclic or cyclic having 1 to 8 carbon atoms;
- aromatic group;

- heterocyclic group; and
- acyl group; and

(b) a C-terminal substituent selected from the group consisting of hydroxy, alkoxy, aryloxy, unsubstituted and substituted amino group.

73. (New) The composition of claim 72, wherein said alkyl or aromatic group is further substituted with a group selected from the group consisting of halide, hydroxyl, alkoxyl, aryloxyl, hydroxycarbonyl, alkoxylcarbonyl, aryloxycarbonyl, carbamyl, unsubstituted amino, substituted amino, sulfo, alkyloxysulfonyl, phosphono and alkoxyphosphonyl groups.

74. (New) The composition of claim 72, wherein said all-D peptide further comprises an acid functional group, or a pharmaceutically acceptable salt or ester form thereof.

75. (New) The composition of claim 72, wherein said all-D peptide further comprises a base functional group, or a pharmaceutically acceptable salt form thereof.

76. (New) The composition of claim 72, wherein said all-D peptide is selected from the group consisting of SEQ ID NOS: 1-48.

77. (New) The composition of claim 76, wherein said all-D peptide is modified by substituting at least one amino acid residue with another amino acid or non-amino acid fragment.

78. (New) The composition of claim 77, wherein said modified peptide is selected from the group consisting of SEQ ID NOS: 49-63.

79. (New) The composition of claim 76, wherein said all-D peptide is modified by removing or inserting at least one amino acid residue.

80. (New) The composition of claim 76, wherein said amyloid protein is selected from the group consisting of: Aβ(1-42, all-D), beta sheet region of IAPP (24-29, all-D), β2-microglobulin, amyloid A protein, prion-related proteins, GAG-binding site region, and macrophage adherence

region (10-16, all-D).

81. (New) A composition for preventing and/or treating an amyloid-related disease in a subject, comprising an antigenic amount of a peptide having Formula I:

R'—(P)—R" (I)

wherein

P is an all-D peptide of a fibril or amyloid protein selected from the group consisting of: Aβ(1-42, all-D), C-terminal region, β sheet region, GAG-binding site region, cellular adherence region, immunogenic fragments thereof, protein conjugates thereof, immunogenic derivative peptides thereof, immunogenic peptides thereof, and immunogenic peptidomimetics thereof;

R' is an N-terminal substituent selected from the group consisting of:

hydrogen;

lower alkyl group consisting of acyclic or cyclic having 1 to 8 carbon atoms;

aromatic group;

heterocyclic group; and

acyl group; and

R" is a C-terminal substituent selected from the group consisting of hydroxy group, alkoxy group, aryloxy group, unsubstituted group, and substituted amino group.

82. (New) The composition of claim 81, wherein said all-D peptide elicits the production of antibodies against said all-D peptide, and induces an immune response by said subject, thereby preventing and/or reducing amyloid-induced amyloid fibril formation or neurodegeneration.

83. (New) The composition of claim 81, wherein said alkyl or aromatic group is further substituted with a group selected from the group consisting of halide, hydroxyl, alkoxyl, aryloxyl, hydroxycarbonyl, alkoxylcarbonyl, aryloxycarbonyl, carbamyl, unsubstituted amino, substituted amino, sulfo, alkyloxysulfonyl, phosphono and alkoxyphosphonyl groups.

84. (New) The composition of claim 81, wherein said all-D peptide further comprises an acid functional group, or a pharmaceutically acceptable salt or ester form thereof.

85. (New) The composition of claim 81, wherein said all-D peptide is selected from the group consisting of SEQ ID NOS: 1-48.

86. (New) The composition of claim 85, wherein said all-D peptide is modified by substituting one or more amino acid residues with other amino acid or non-amino acid fragment.

87. (New) The composition of claim 86, wherein said modified peptide is selected from the group consisting of SEQ ID NOS: 49-63.

88. (New) The composition of claim 85, wherein said all-D peptide is modified by removing or inserting one or more amino acid residues.

89. (New) The composition of claim 81, wherein said disease is selected from the group consisting of Creutzfeld-Jakob Disease; familial amyloid neuropathy; hereditary spongiform encephalopathy; scrapie, bovine spongiform encephalopathy; light chain-related amyloidosis; secondary amyloidosis; Type I or Type II diabetes; primary amyloidosis; prion-mediated diseases; and dialysis-related amyloidosis.

90. (New) The composition of claim 81, wherein said disease is Alzheimer's disease.

91. (New) The composition of claim 81, wherein said disease is cerebral amyloid angiopathy (CAA).

92. (New) The composition of claim 81, wherein said subject is a human.

93. (New) A method for preventing and/or treating an amyloid-related disease in a subject, comprising: administering to a subject an antigenic amount of an all-D peptide, wherein said all-D peptide interacts with at least one region of an IAPP peptide and elicits the production of antibodies against said all-D peptide and induces an immune response by said subject, thereby preventing and/or reducing amyloid-induced amyloid fibril formation or neurodegeneration.

94. (New) The method of claim 93, wherein said disease is selected from Type I and/or Type II diabetes.

95. (New) The method of claim 93, wherein said disease is Alzheimer's disease.

96. (New) The method of claim 93, wherein said disease is cerebral amyloid angiopathy (CAA).

97. (New) The method of claim 93, wherein said subject is a human.

98. (New) The method of claim 93, wherein said amyloid protein is selected from the group consisting of: Aβ(1-42, all-D), beta sheet region of IAPP (24-29, all-D), β2-microglobulin, amyloid A protein, prion-related proteins, GAG-binding site region, and macrophage adherence region (10-16, all-D).

99. (New) A composition for preventing and/or treating an amyloid-related disease in a subject, comprising: administering to the subject an antigenic amount of an all-D peptide, wherein said all-D peptide all-D peptide interacts with at least one region of an IAPP peptide and elicits the production of antibodies against said all-D peptide and induces an immune response by said subject, thereby preventing and/or reducing amyloid-induced amyloid fibril formation or neurodegeneration.

100. (New) The composition of claim 99, wherein said disease is selected from Type I and/or Type II diabetes.

101. (New) The composition of claim 99, wherein said disease is Alzheimer's disease.

102. (New) The composition of claim 99, wherein said disease is cerebral amyloid angiopathy (CAA).

103. (New) The composition of claim 99, wherein said subject is a human.

REMARKS

Applicant has amended the claims herein so as to clarify and more particularly indicate the claimed subject matter, to more properly and easily identify the disclosed sequences, and to correct